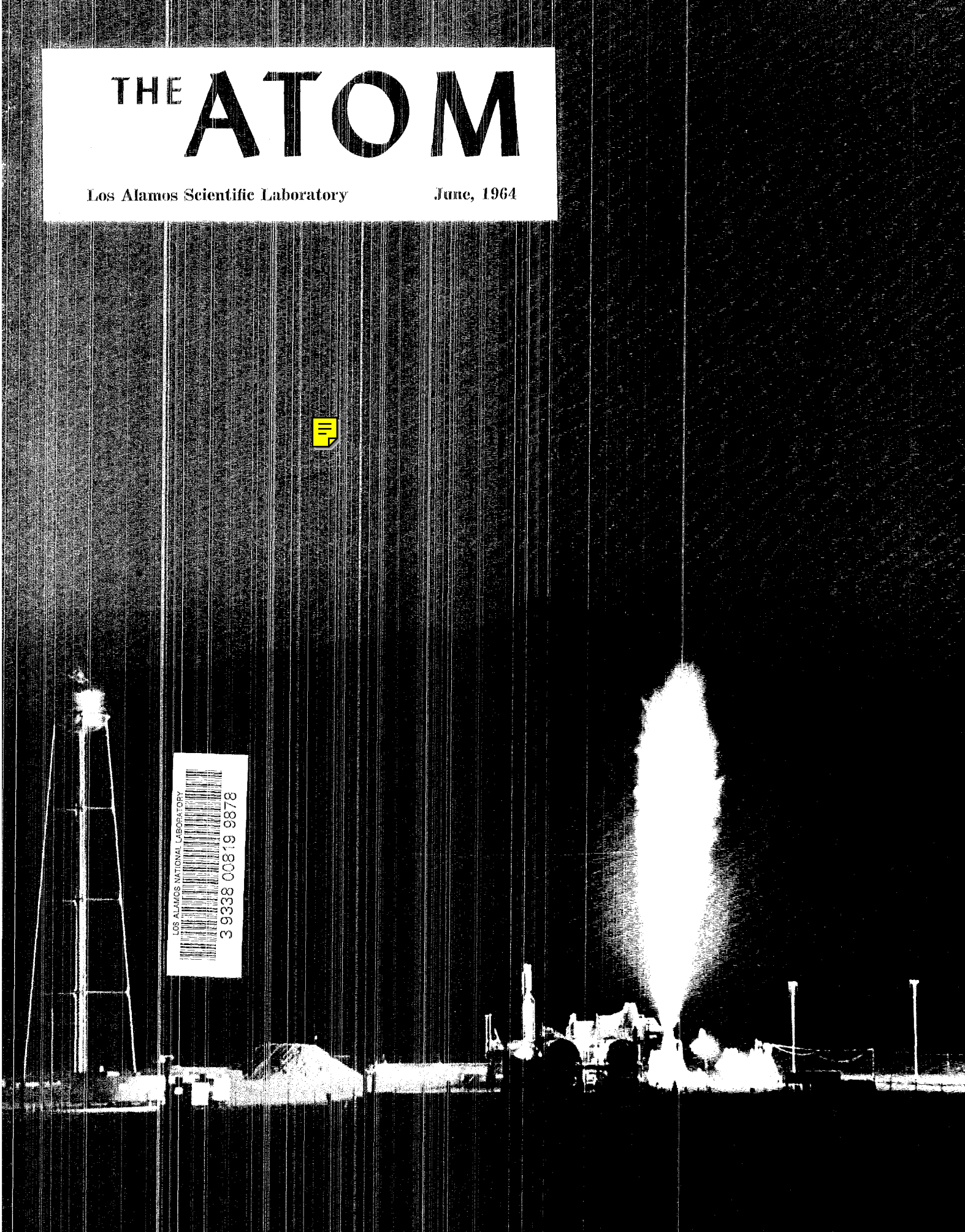
THE ATOM

Los Alamos Scientific Laboratory — June, 1964



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Volume 1 Number 6

Published monthly by the University of California,
Los Alamos Scientific Laboratory, Office of Public Relations,
P.O. Box 1663, Los Alamos, New Mexico, 87544.
Second Class Postage paid at Los Alamos, New Mexico.

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Office: D-413 Administration Building. Telephone: 7-5236.
Printed by The University of New Mexico Printing Plant, Albuquerque.

ON THE COVER: May was a big month for Kiwi, the Laboratory's nuclear reactor being developed for Project Rover. The color photograph, by D-8's Mitzie Ulibarri, was taken in May, 1963, during a nighttime "cold flow" test at the Nuclear Rocket Development Station in Nevada. A story on the apparently highly successful "hot run" of Kiwi last month begins on page 3.

Short Subjects

Behavioral studies on x-irradiated mice from Los Alamos won a second place award at the National Science Fair in Baltimore, Md., last month for a New Jersey high school junior. Frederick Aronson of Hillsdale, N.J., obtained the surplus mice from H Division after he visited LASL during the 1963 Science Fair, which was held in Albuquerque. The winning exhibit is to be on display at the American Museum of Atomic Energy in Oak Ridge, Tenn., according to a letter young Aronson sent Dr. J. F. Spalding of H-4.

Kevin McKibbin, CMF-13, has resigned to become a park ranger at Timpanogos Cave National Monument in central Utah.

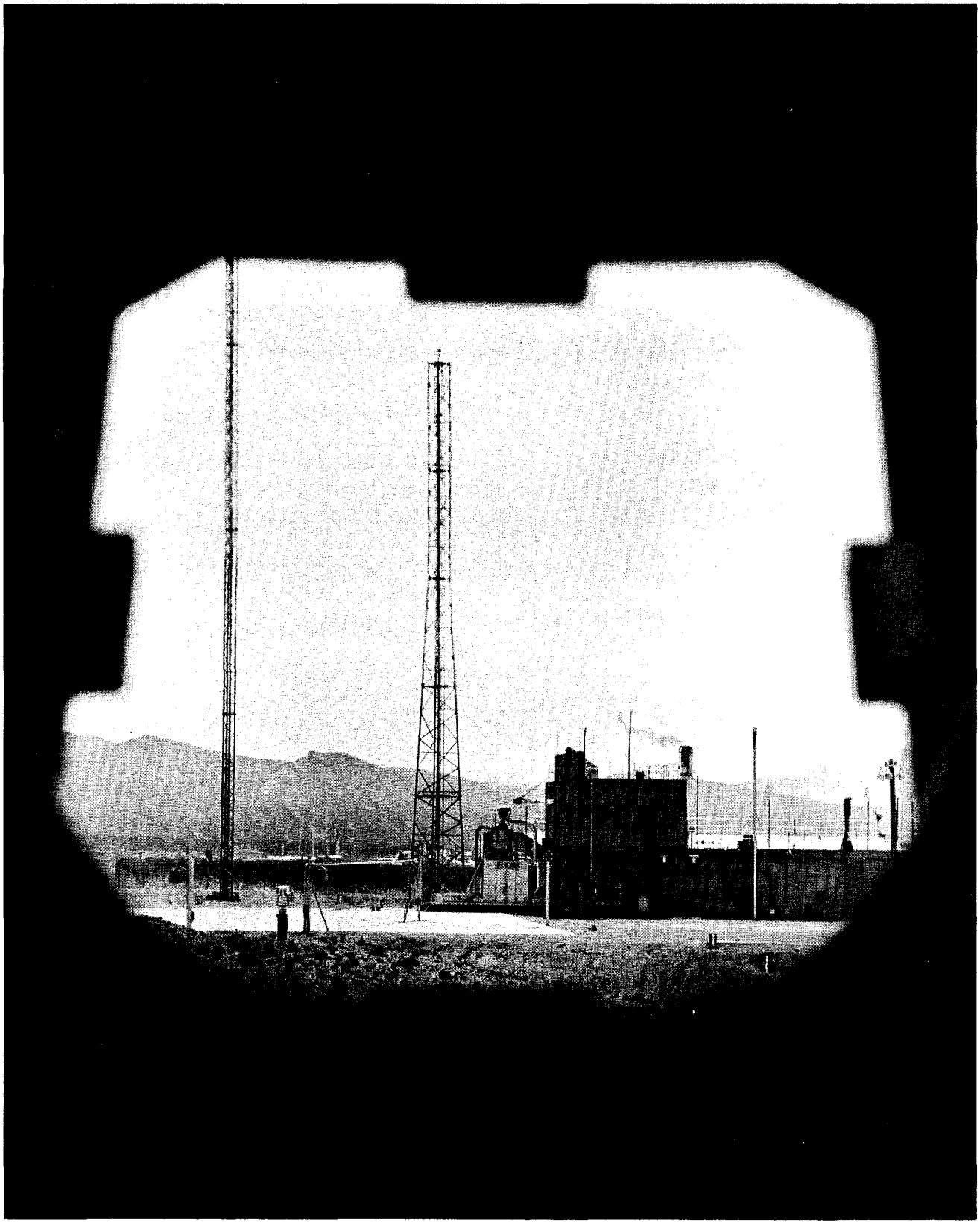
Gerold Tenney, GMX-1 group leader, presented the first lecture in a series on materials science at the University of Denver May 11. Tenney discussed "The Application of Radiation-Emitting Sources to Nondestructive Testing." The lecture series is sponsored by the University's Department of Metallurgy through a grant from the Martin Company of Denver.

Allen Stamm and Associates of Santa Fe have signed a contract with the AEC to build single-family homes on 135 lots they are to develop on 59 acres of White Rock land west of the new elementary school. The Stamm Company has a year to complete site improvements and two years to erect at least three-fourths of the houses.

Technical Associate Director Raemer E. Schreiber received an honorary Doctor of Science degree at Purdue University commencement exercises May 31. Dr. Schreiber, who joined the Laboratory in 1943, obtained his PhD from Purdue in 1941 and did Manhattan Project research on the Purdue cyclotron before coming to Los Alamos. The honorary doctorate cited Dr. Schreiber's contributions to the nation's nuclear weapons program and his role in the development of nuclear rocket propulsion.

Copies of last month's special issue of The Atom, concerning community planning, may be obtained from the Community Relations Office in AP Building. Distribution of the 32-page publication has been made through major employers in Los Alamos.

Automation has come to the LASL Libraries. Computers are now helping to alleviate the increasingly difficult records-keeping chore faced by libraries personnel. Beginning last month, a computer now prints the routing slips which are attached to the thousands of incoming periodicals.



The actual power run of the Kiwi B4-D reactor was photographed from a nearby bunker through a series of mirrors so radiation would not fog the film. Hydrogen from the nozzle is burning with a clean, almost invisible flame.

KIWI B4-D "LOOKS REAL GOOD"

"I never thought a grown man could become emotional about a reactor test, but I did during the past few hours." So said Harry Finger, chief of SNPO, following the hot test of LASL's Kiwi B4-D reactor at NRDS on May 13.

Finger's words were echoed by Robert Seamann, Associate Administrator for NASA who was on hand for the test, as well as by many of the scientists and engineers concerned with Kiwi and Project Rover who witnessed the test.

Test personnel smiled as the reactor went into its shutdown phase —an expression of satisfaction which seemed odd in view of the fact that the reactor power run was cut short of its intended duration because of a fire on the test car. But it was obvious to them that the fire was outside the reactor itself, and both visual observations and initial instrumentation indicated that Kiwi B4-D had operated above planned power and temperature for 64 seconds.

Harry Finger, who heads the nation's joint AEC-NASA Space Nuclear Propulsion Office (checked shirt), appears intent as he listens to LASL's Charles Fenstermacher, J-18 group leader, during the power test of Kiwi B4-D. Directly to Finger's right in the NRDS control room is Alvin C. Graves, LASL's Test Division Leader, and to his right is Keith Boyer, Associate Test Division Leader who is in charge of LASL's reactor test operations at the Nuclear Rocket Development Station in Nevada.

The fire, caused by a hydrogen leak, led to a decision by run director James B. Henshall to halt the test. The operation began at 7 a.m. and full power was achieved at about 11 a.m. Raemer E. Schreiber, LASL Technical Associate Director, said investigation into the cause of the fire points tentatively to a nozzle leak which allowed hydrogen to spurt out through the structure.

Reactor disassembly and post mortem analysis has been proceeding on a two-shift basis since the power run, according to Schreiber who attended the hot test with Norris E. Bradbury, LASL Director. Schreiber said information will continue to come in for a few more weeks, "but general indications are that the reactor itself performed at or above expectations and suffered no damage."

The B4-D is the seventh nuclear reactor in the Kiwi series to be tested by LASL and the third to use liquid hydrogen as the coolant and propellant. The Kiwi B-4A reactor, tested November 30, 1962, experienced severe vibrations which caused the core to break up and spew skyward along with the exhaust.

Preliminary data of the Kiwi B4-D test, including a scan of the more than 800 electronic channels of information, and early disassembly of the reactor indicate there was no evidence of the vibrations experienced in the B-4A test, and there were no flashes in the exhaust indicating core break up. To further substantiate the findings, radsafe recovery teams could find no

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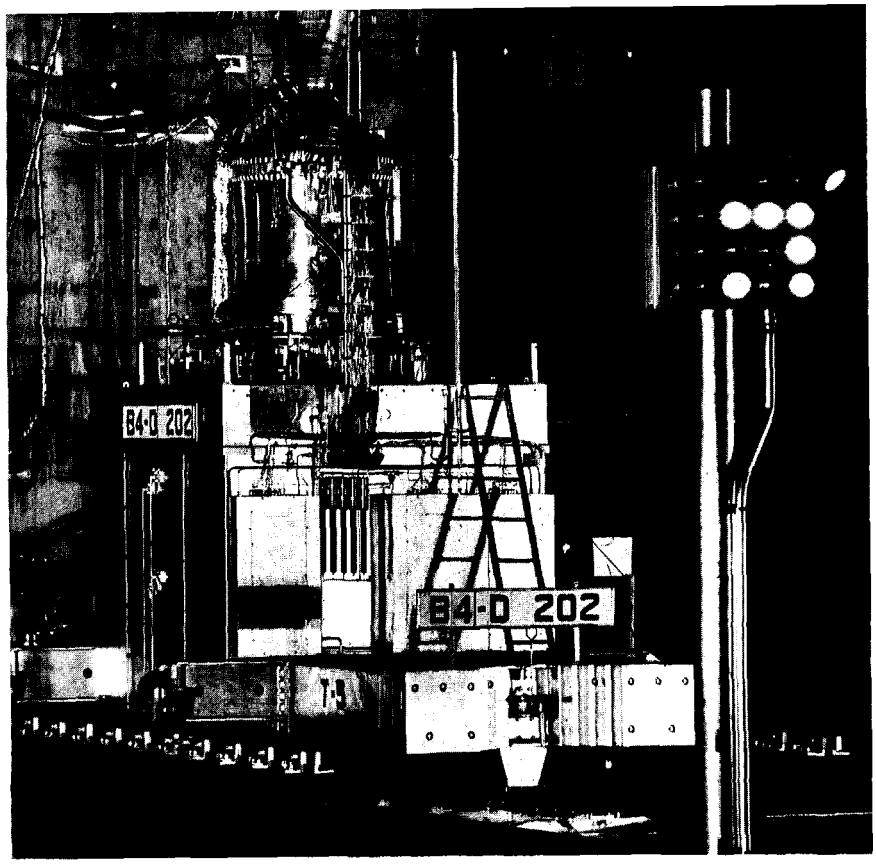


LASL's Kiwi B4-D reactor sits bathed in light at Test Cell "C" just 10 hours before the hot run held May 13 when the device operated at above planned power and temperature for 64 seconds.

Official spectators not directly connected with the actual Kiwi B4-D power run, watched the remotely controlled operation from the observer room, adjacent to the Test Cell "C" control room. A window separates the two rooms.

KIWI . . .

continued from preceding page

radioactive particles on the desert floor near the Kiwi B4-D, another indication there were no vibrations and that the core stayed intact.

Detailed results of the B4-D power run will not be available until total disassembly of the reactor has taken place and data completely analyzed, but Schreiber said, "It looks good, it looks real good."

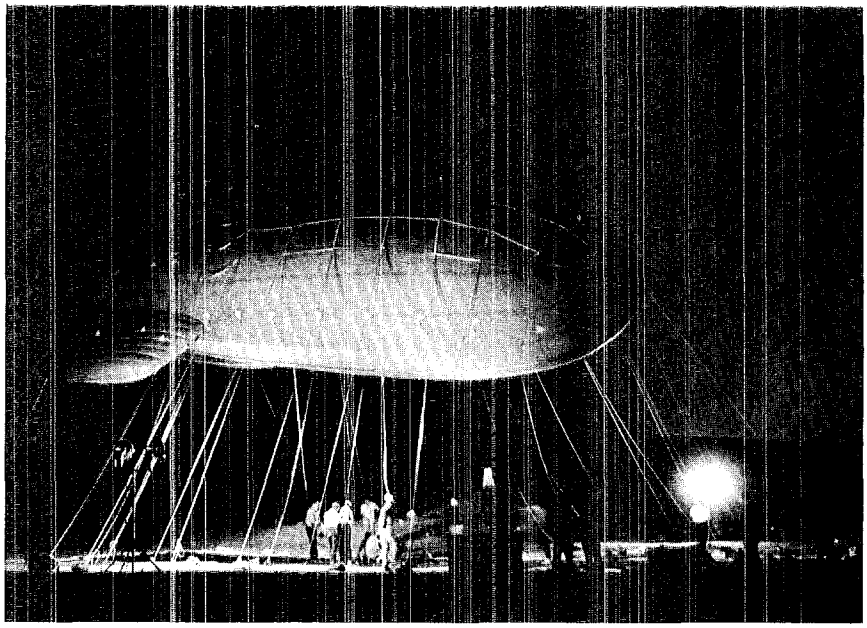
The B4-D was the first reactor to be hot tested at Test Cell "C."

There were no hot tests at NRDS during 1963, but LASL did conduct a series of cold flow experiments in Kiwi-type reactors in a continuing program to evaluate re-designed core support structures and hot-end seals in an effort to eliminate the vibration problems experienced in the 1962 hot test. Cold flow tests conducted during February, 1964, on a Kiwi B4-D reactor proved that the redesigned core support structure and hot-end seal prevented excessive vibrations, at least under cold flow conditions. It took the hot test of May 13 to confirm the cold flow findings.

During a cold flow test, liquid hydrogen is pumped through a reactor identical in every way to a hot reactor, except that the core in the former contains no fissionable material such as uranium.

Later this summer LASL plans to test a more advanced reactor, Kiwi B4-E, before moving on to the Phoebus program of higher powered graphite reactors. The NERVA (Nuclear Engine for Rocket Vehicle Application) contractors will also hot test a reactor later this summer known as NRX-A2, which is based on designs developed by the LASL Kiwi work.

A cut in Rover funding this year did not affect LASL's part in the Rover program to any great extent, but it did take a big bite out of NERVA funding, and eliminated



Douglas Aircraft conducted acoustic tests from this balloon which was launched near Test Cell "C" the night before the power run of Kiwi B4-D.

William Schweitzer and Fred Sanders, both with H-8, place radiation counters at Test Cell "C," NRDS, prior to the Kiwi B4-D hot run held May 13.

RIFT (Reactor In Flight Test). Aerojet-General and Westinghouse are the NERVA contractors, and Lockheed was the RIFT contractor. Many Rover personnel are saying that if the Kiwi B4-D hot test proves as successful as early analysis indicates, it could well be the shot in the arm needed to accelerate the program.

Rover, America's program to develop a nuclear propelled rocket, is a joint AEC-NASA project administered by the Space Nuclear Propulsion Office. Some 475 people at LASL are working on the Rover program, the second largest project at the Laboratory.

New Mexico Senator Clinton P. Anderson called the Kiwi B4-D test extremely encouraging, indicating that Project Rover "may well be ready in time to be of use for trips to the moon."

Test Cell "C" personnel sponsor a steak cook-out the night before a Kiwi reactor is tested. The traditional steak-fry started at Test Cell "A" in an effort to keep key personnel at the site where they were needed, rather than having them vanish to points unknown for dinner. There is a nominal charge.

THE DIMINISHING TA-1

Tools which helped shape the Atomic Age have been removed from the recently vacated Old Sigma Building but their places are still marked on a board where they once hung.

Once the Center of Activities That Changed the World, LASL's First Technical Area Is Only Months Away from Oblivion

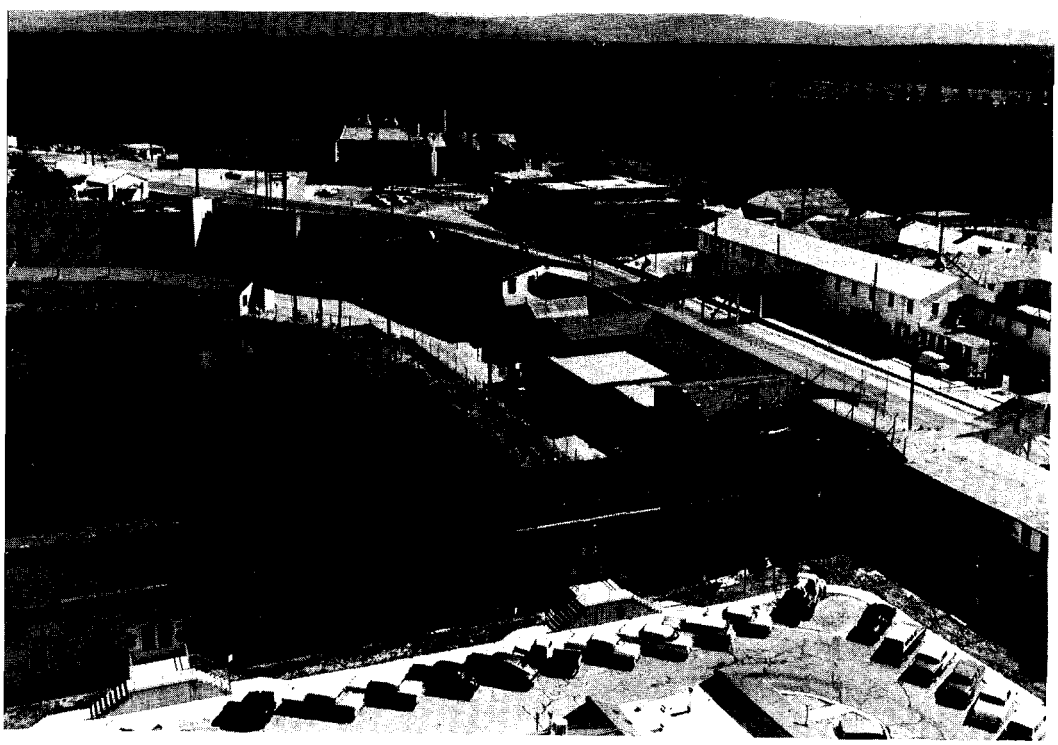
A little more of the Laboratory's first Technical Area was shut down last month and the death sentence was pronounced on what's left of the once-sprawling complex of wooden buildings that were the center of the activities that produced the atomic bomb.

In its heyday, during the war and for a few years afterwards, TA-1 was the nerve center of the Laboratory. If it wasn't a pretty place, its appearance reflected the urgency of its purpose.

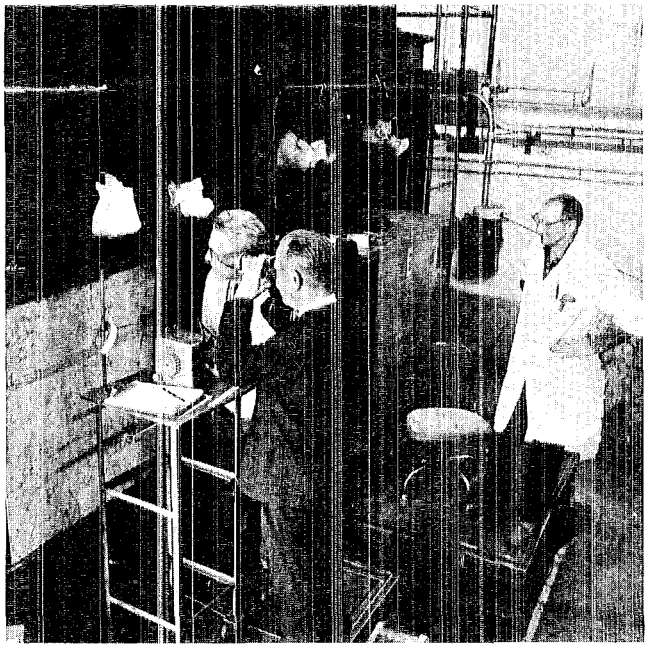
Above-ground plumbing was its landscape and on its skyline were security fences topped with barbed wire which ran up the sides and over the roofs of buildings.

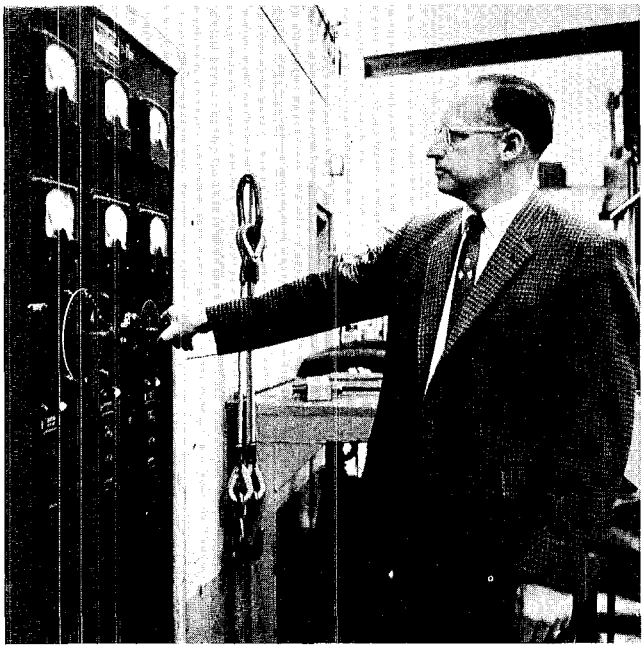
Born almost overnight, the old technical area has been dying for more than a decade.

In the early 1950's the Laboratory began moving facilities away from TA-1's "downtown" location to new permanent buildings across Los Alamos Canyon to the south.



Less than a decade ago TA-1 straddled Trinity Drive and nearly surrounded Ashley Pond. Only two of these Laboratory buildings remain today; they will be deserted in a year.





At a short ceremony, May 5, Technical Associate Director Raemer Schreiber and Charles Campbell, AEC Area Manager, view the shaping of a piece of tunsten in an Old Sigma Building hot press as Haskell Sheinberg, CMB-6, looks on. It was the last technical use of TA-1 facilities. At right, CMB-6 Group Leader James Taub, a LASL pioneer and winner of an AEC Lawrence Award for his contributions to metallurgical science, turns off press for the last time.

As old structures were left empty and were torn down, the gaps they left cut a swath across TA-1 and left two islands of remaining buildings.

Now, one of those has been vacated and will soon be torn down. On May 5, group CMB-6 halted its powder metallurgy operations which had been performed in the Old Sigma Building since 1944 and transferred its remaining personnel to a newer building across the canyon.

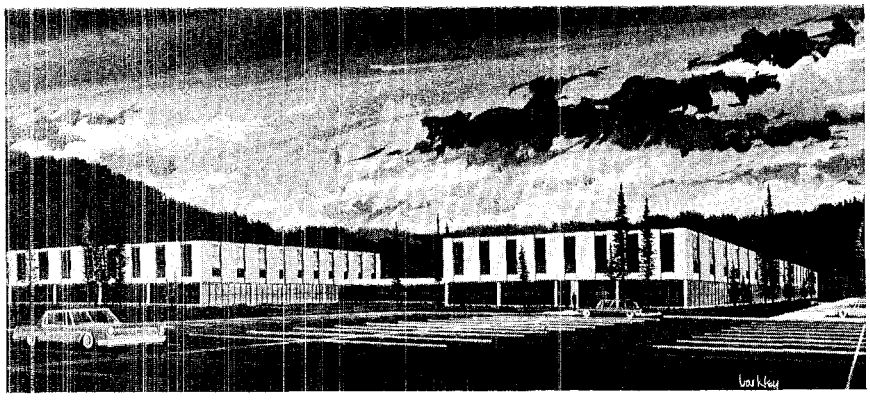
Work was begun last month on three additions to the Administration and Computer Building in TA-3. When completed a year from now at a cost of $1,420,100, they will house the last remaining occupants of TA-1--the Personnel and the Supply and Property Departments and the Community Relations Office.

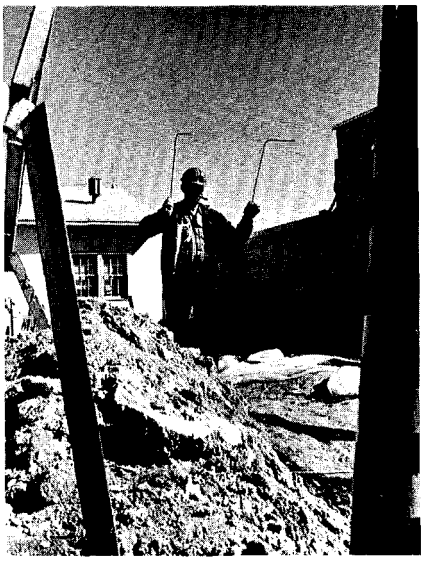
At present, those organizations are housed in the AP and P Prime Buildings next to Ashley Pond, across the street from The Lodge.

The shutdown of Old Sigma and its adjacent buildings in the fenced-off portion of TA-1, across Diamond Drive and to the west of Ashley Pond, was noted officially by a small ceremony. Jim Taub, CMB-6 group leader and a LASL pioneer, pulled a switch that shut down a hot press in a barn-like foundry room. The ritual was attended by a few LASL and AEC officials and members of the metallurgy groups.

Plans are being made to raze the buildings and redevelop the area for possible commercial use.

This architectural rendering shows two of the three new additions to the Administration and Computer Building to be completed in about a year at a cost of $1,420,100. The view is from the east of the present building, looking to the northwest. T Division and Engineering offices will be located in the building at left. Personnel and the Supply and Property departments and the Community Relations Office will move to the building at right, vacating the last buildings in use near Ashley Pond.





The Weirdest Wires In Town

There's a lot of special equipment in use around Los Alamos Scientific Laboratory, but you probably wouldn't guess that divining rods would be included.

But for the past 12 years, ever since Walt Humphrey came to work for Zia Company as a field engineer, they've played a role in excavation work at Los Alamos.

A graduate civil engineer, Humphrey works in Zia's Tech Area Office Division. His work includes planning, scheduling and supervising construction work. Though seemingly easy going, he has built a reputation as a man who gets things done.

Part of Humphrey's job is to locate buried pipelines and other underground metal in advance of excavating for new construction in the LASL technical areas and the Los Alamos townsite. His "metal detectors" are simply two pieces of wire bent "L" shape. "Just about any old wires will do," he says, but he finds a pair of welding rods most convenient.

He holds the wires, one in each hand, loosely between thumb and index finger, supporting most of their weight on the palms of his hands. With the wires held slightly above his head, Humphrey walks slowly over the area where he suspects buried metal objects. When the wires turn in his hands and the bent ends point at each other, this is his signal that he is directly over metal. Strange thing is—he's almost always right. The men with whom he works attest to his record of success.

Last year, when workmen were widening Diamond Drive to four lanes, electronic metal detectors spotted a number of underground pipelines. Then Humphrey bent a pair of welding rods and went out and located several more.

His boss, Bill Francis, chief of the Zia Tech Area Division, says of Humphrey's unorthodox methods: "It's the damndest thing, but you can't argue with success." Francis said he feels that Humphrey's system is not infallible, "but neither," he added, "is an electronic pipe detector."

Francis summed it up: "We have a duty to find underground pipes using whatever methods we can. If Humphrey can find them with his bent wires, I'm not about to tell him to stop."

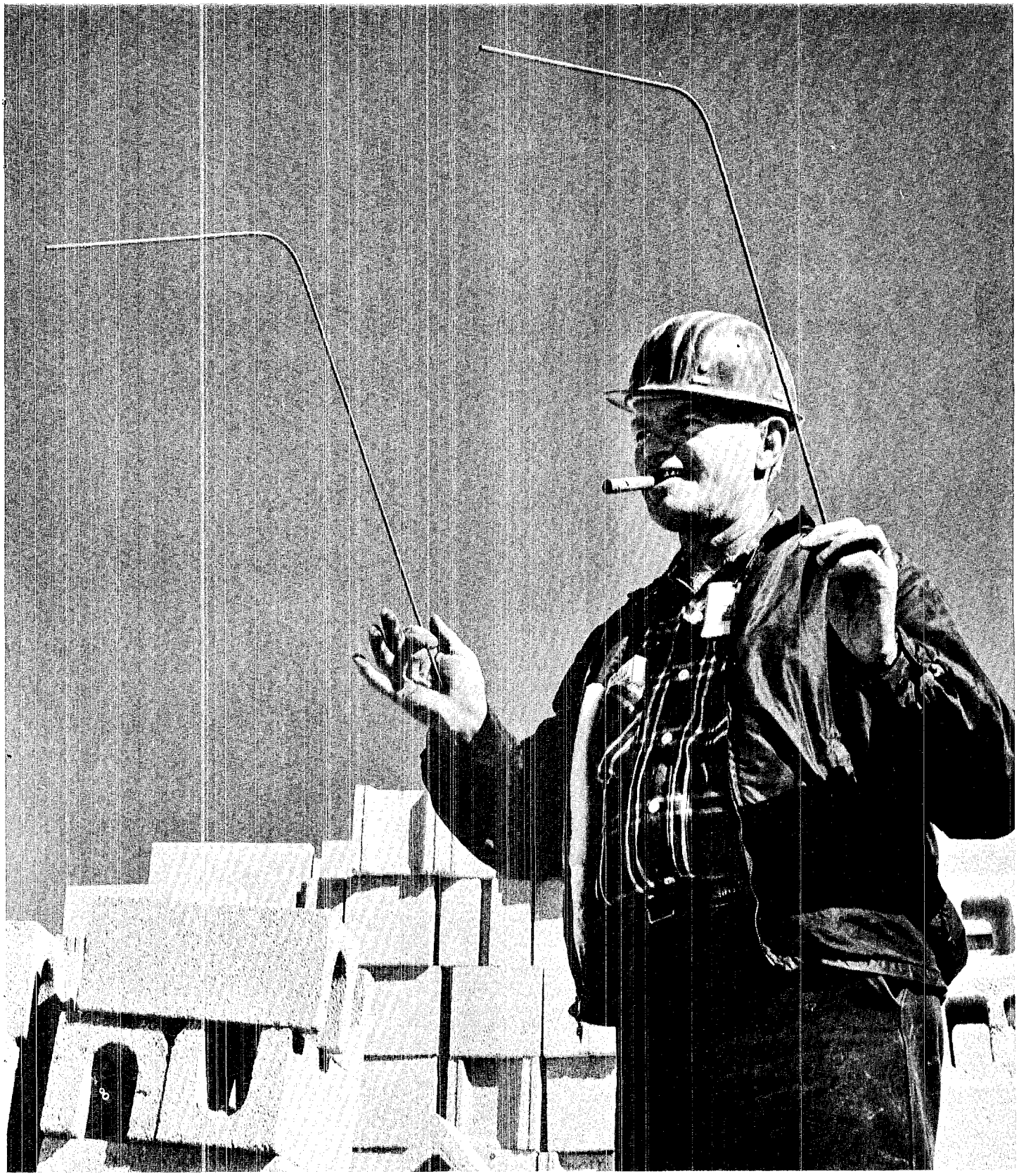
It was about 20 years ago, Humphrey recalls, that he discovered his rare ability. On a construction site one day, while working as a field engineer with a utility company, he picked up a couple of wires while talking with another man. The wires immediately began to wiggle, he said, and "if I hadn't held on very tight, they'd have jumped right out of my hands." He noticed, then, that he was standing directly over a buried utility line.

Baffled by what had happened, Humphrey said, he began to experiment. When he walked away from the underground line, the wires stopped moving. Whenever he approached the pipeline, however, they began their jerking motion again.

During the years he has worked at Los Alamos, dozens of people have observed Humphrey using his simple metal detectors. *The Atom* found none who would deny his apparent success, though theories as to *why* varied widely.

At least one LASL staff member feels that Humphrey's experiences "are very likely evidence of extrasensory perception." The staff member, who holds a doctoral degree, rules out the possibility of finding an explanation in the laws of physical science. "Any physical attraction between buried metal and the wires Humphrey holds in his hands, such as the force of gravity, is negligible —beyond the limit of detection," he said.

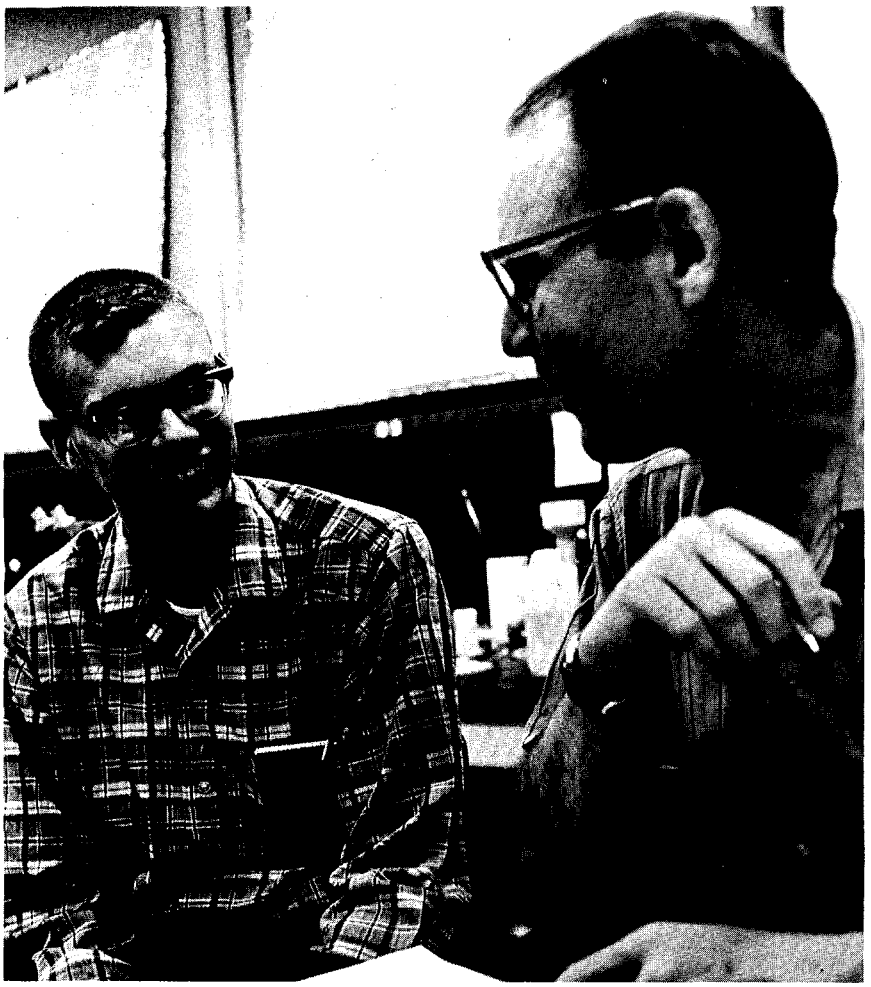
Humphrey himself is the most reluctant of all to express any theory for his apparent ability. "I really don't even care why I'm able to do it—all I'm interested in is that it does work."



Walt Humphrey searches for underground metal with his divining rods—a pair of bent wires.

FUTURE SCIENTISTS VISIT LASL

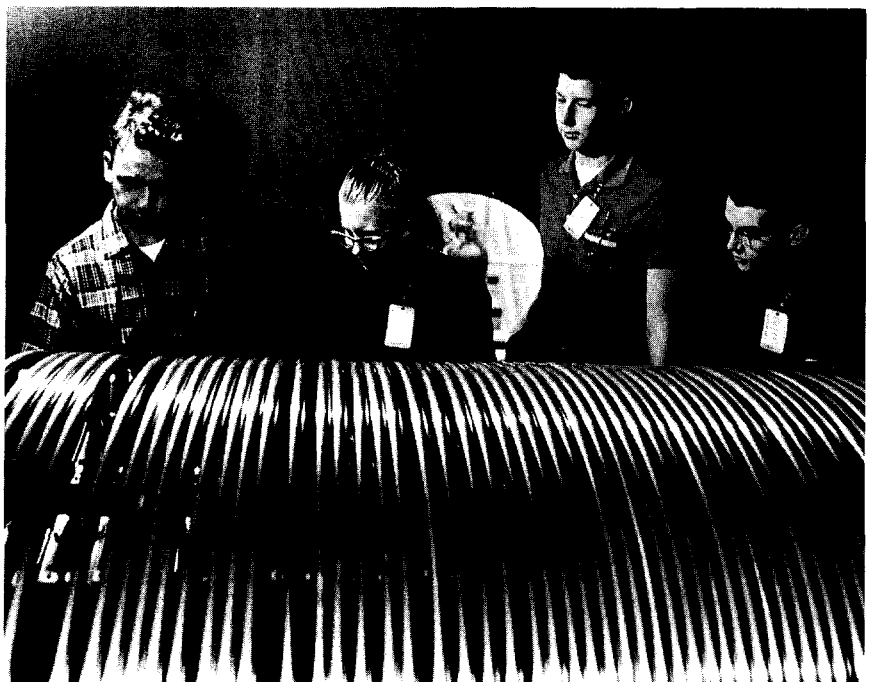
Five Los Alamos High School science students—winners in science fair competitions—were guests in Laboratory technical areas in early May. The young people, with interests ranging from mathematics to thermonuclear fusion, heard explanations of LASL programs and got the feel of shirtsleeve laboratory work by spending time with staff members on the job. The visitors were Janice Dinegar, whose State Science Fair exhibit won her a trip to the national competition in Baltimore, Md.; Kenneth Cox, a state fair runnerup; and John Landahl, Charles McClenahan and Paul Argo, first place winners in the regional science fair.



Counting body radiation interested John Landahl (left) during chat with Marvin Van Dilla of H-4.

Paul Argo adjusts glass piping under watchful eye of Floyd Baker of CMF-2.

Roger Perkins (left) of P Division explains function of stainless steel shielding rings in new tandem Van de Graaff accelerator tank to Janice Dinegar, Charles McClenahan and Kenneth Cox.



LASL Director Norris Bradbury (left) and the Laboratory's only former director, J. Robert Oppenheimer, enter LASL's museum in AP Building. Many of the exhibits recall Oppenheimer's leadership in producing the atomic bomb.

LOS ALAMOS REVISITED

Dr. J. Robert Oppenheimer returned to Los Alamos May 18 and made his first public address in the Atomic City since resigning as Laboratory Director in late 1945. Dr. Oppenheimer was greeted by a standing ovation when he stepped to the lectern in Civic Auditorium where he discussed "Niels Bohr and Atomic Weapons."

Arriving a few hours in advance of his scheduled lecture, Dr. Oppenheimer visited the LASL museum in AP Building, watched a special showing of a documentary movie on the development of the atomic bomb, and chatted with some friends of two decades.

His was a short but very busy visit to the town and laboratory he helped to build.

OPPENHEIMER . . .

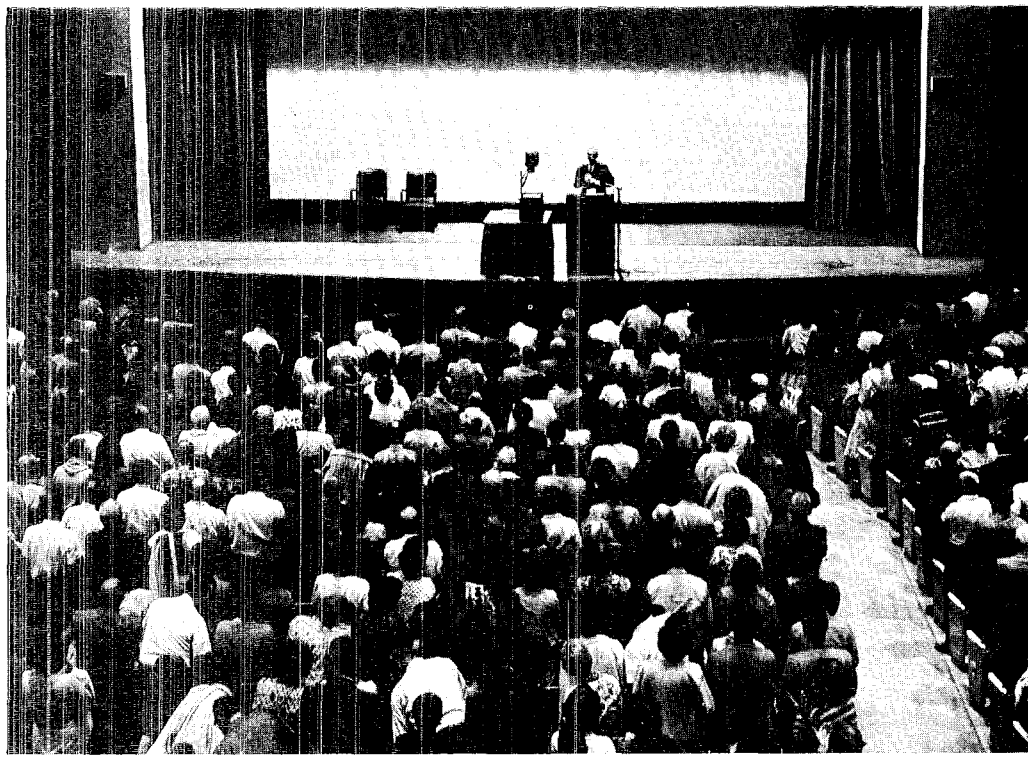
continued from preceding page

Oppenheimer and his wife, Kitty, were given a special showing of the documentary movie "Ten Seconds That Shook the World" which traces the events which led to the development of the first nuclear weapons.

The famed scientist took time out to remember as he tried the old executive chair he used as Laboratory Director. Oppenheimer noted that it was "still very hard." The chair is an exhibit in the LASL museum.

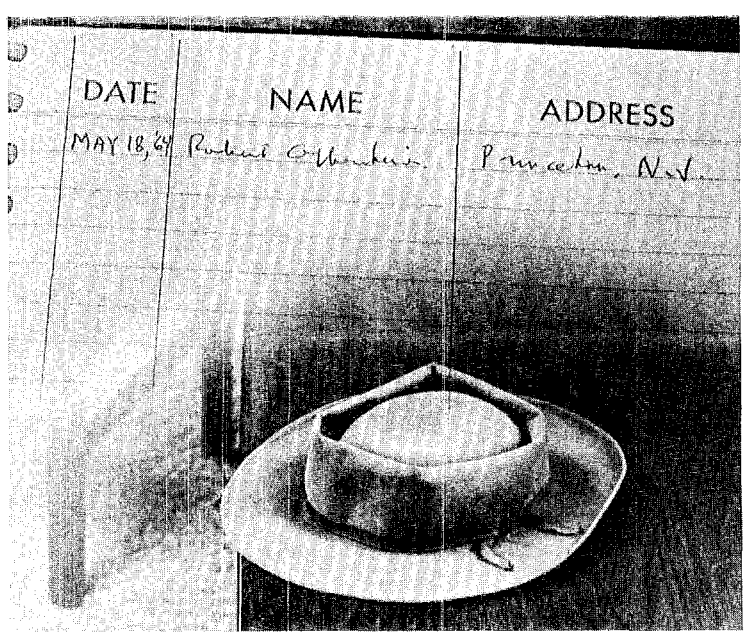
Dr. and Mrs. Oppenheimer chat with long-time friends after visiting the museum.

Oppenheimer collects his thoughts as he is introduced to a capacity crowd at Civic Auditorium.



At Civic Auditorium Oppenheimer received a standing ovation as he approached the lectern, and again when he finished his speech. Oppenheimer discussed "Niels Bohr and Atomic Weapons."

The distinctive Oppenheimer hat and his signature in the LASL museum's guest register recall the visit of the man who turned a ranch school into the world's most famous nuclear laboratory.



New Mexico Library Association Meeting, Santa Fe, April 23:

"The Special Library and Its Problems. Part 3 of: Problems in our Libraries in Meeting the Demands of Modern Education" by Lois E. Godfrey, D-2.

Plutonium Metallography Problems Session at Rocky Flats, April 29-30:

"Transmission Electron Microscopy of Plutonium Alloys" by Stanley E. Bronisz and Dana L. Douglass, both CMF-5.

"Replication Techniques for Plutonium Surfaces" by Dana L. Douglass, CMF-5.

"Alternating Current Etching of Plutonium and Other Metals" by Kaye A. Johnson, CMF-5.

The Technical Side

American Foundrymen's Society Meeting, Atlantic City, N.J. April 27-May 1:

"The Recovery of Mechanically Entrapped Plutonium from Casting Skulls and Turnings" by Delbert R. Harbur, CMB-11.

Electrochemical Society Meeting, Toronto, Canada, May 3-7:

"The Determination of the Hafnium Alpha-Beta Transition by a New Method" by Nerses H. Krikorian and Terry C. Wallace, both CMB-3.

"High Carbon Portion of the Uranium-Gadolinium-Carbon System" by Terry C. Wallace, Nerses H. Krikorian and Patrick L. Stone, all CMB-3.

19th Purdue Industrial Waste Conference, Lafayette, Indiana, May 5-7:

"Fixation of Atomic Wastes in Inert Solid Materials" by Eric B. Fowler, H-7.

Libby-Cockcroft Graphite Chemistry Meeting, Richland, Washington, May 11-13:

"Graphite Corrosion Studies for the Ultra High Temperature Reactor Experiment" by Peter G. Salgado, K-4.

IAEA Symposium on the Assessment of Radioactive Body Burdens in Man, Heidelberg, Germany, May 11-16:

"Physiological Properties of Plutonium and Assessment of Body Burdens in Man" by Wright H. Langham, H-4.

COSPAR Meeting, Florence, Italy, May 12-16:

"Plasma Observations at 10^5 KM" by Sidney Singer, Jerry P. Conner, W. Doyle Evans, Michael D. Montgomery, and Eldon E. Stogsdill, all P-4.

"Solar Flare X-ray Emission Measurements" by Jerry P. Conner, W. Doyle Evans, Eldon E. Stogsdill, Sidney Singer and Michael D. Montgomery, all P-4.

ALO and ALO Contractor Health Protection Conference, Kansas City, Missouri, May 13-14:

"A Look at Personnel Dosimetry" by Dean D. Meyer, H-1.

"Respirator Fitting Program" by Edwin C. Hyatt, H-5.

"NEUTRINO" BOMB STORY IN NEW BOOK

The neutrino bomb has been heard from again.

First printed in the July 13, 1961 *LASL News*, the story of the "clean, blastless nuclear weapon" appears now in a book, "Great Science Fiction by Scientists."

The bomb story was written by Ralph S. Cooper of T Division. It prompted many dead-serious editorials in newspapers across the country, coming as it did during an international test moratorium.

Cooper's tale, presented straight, told of reports the Russians had been testing the so-called "peace bomb," which caused no damage. The "tactical size" weapon, he said, contained one cubic foot of hydrogen and packed a wallop of "about one microton," created when electrons and protons annihilated each other and emitted a flood of neutrinos.

Commenting editors failed to spot the spoof, based on the harmless neutrino which had been detected at Los Alamos in 1956.

The science fiction anthology is a paperback published by Collier Books of New York and is priced at 95 cents. Other authors include Julian Huxley, Willy Ley and Leo Szilard.

Plutonium Weapon Information Group Meeting, Hanford, Washington, May 19-20 (Classified):

"Bonding of Plutonium to Uranium" by Franklin Miley, CMB-11.

"Studies on Phase Transformation of Plutonium" by John W. Anderson, CMB-11.

"Electron Microprobe Examination of Delta-Stabilized Plutonium" by E. Arnold Hakkila, CMB-1.

"Two-band Electronic Energy Model for Delta-Plutonium" by Edward A. Kmetko, CMF-5.

"Studies of the Electronic Wave Functions and Energy Levels of the Heavy Elements" by James T. Waber, Don T. Cromer, and Allen C. Larson, all CMF-5.

"Fractography of Alpha-Pu" by Stanley E. Bronisz and Dana L. Douglass, both CMF-5.

"Preferred Orientation in Alpha-Pu" by Stanley E. Bronisz and Raymond E. Tate, both CMF-5.

"Binary Phase Diagrams of Plutonium with Scandium, Yttrium, and the Lanthanide Elements" by Finley H. Ellinger, Cletis C. Land, and Kaye A. Johnson, all CMF-5.

"Cracking of High-Purity Plutonium" by Fred W. Schonfeld and James R. Morgan, both CMF-5.

American Institute of Chemical Engineers Meeting, Pittsburgh, Pa., May 18-20:

"An Unconfined Large Volume Hydrogen-Air Explosion" by Roy Reider, H-3.

Twelfth Annual Meeting of the Radiation Research Society, Miami Beach, Florida, May 18-20:

"Metabolism of Radiocesium by Man and Selected Laboratory Mammals" by Chester R. Richmond, Jerry E. London, and John E. Furchner, all H-4.

Classified Symposium on EMP Effects on Military Systems, L. G. Hanscom Field, Bedford, Mass., May 20-22:

"Theory of the Radio Flash—Numerical Method" by Bergen R. Suydam, T-9.

New Mexico Section of the American Ceramic Society, Santa Fe, May 22:

"An Introduction to the Electron Microscopy of Ceramic Materials" by T. G. Gregory, GMX-1.

Research Colloquium Committee of Sandia Corp., Albuquerque, May 27:

"Some Neutron Physics Experiments with Nuclear Explosions: Past, Present, and Future" by George A. Cowan, J-11.

WHAT'S DOING

All times listed
are Mountain Daylight Time

FLAG DAY OBSERVANCE: Under auspices of Los Alamos Elks Lodge; to be held in front of High School. Public cordially invited.

Sunday, June 14, 4 p.m.

FILM SOCIETY: Civic Auditorium. Films shown 7 and 9 p.m. unless otherwise noted. Admission by $3 season ticket or 90 cents single admission.

Wednesday, June 3, "Monkey in Winter." French thriller, 104 minutes.

Wednesday, June 17, "Lord of the Flies." British drama, 90 minutes.

Wednesday, July 1, "The Balcony." American dirty movie, 84 minutes.

OUTDOOR ASSOCIATION: No charge; open to the public. Contact leader for information on specific hikes.

Saturday, June 6, Lake Peak--Penitente. About ten miles.
Leader, Bob Day.

Thursday, June 11, Night hike.
Leader Don Rose.

Saturday, June 13, Truchas Ampitheatre.
Leader, Jay Fries.

Sunday, June 28, Johnson Lake in the Pecos Wilderness.
Leader, Ken Ewing.

INTERNATIONAL FOLK DANCE CLUB: Open to the public. Meets every Tuesday, 8 p.m., Recreation Hall.

SWIMMING CLUB OF LOS ALAMOS, INC., Membership open to adults interested in swimming. Club meets every Sunday, 7 to 9 p.m.

LOS ALAMOS HIGH SCHOOL POOL: Schedule for public swimming. Adults, 35 cents; students, 15 cents.

Saturday, 1 to 6 p.m.
Sunday, 1 to 6 p.m.
Monday, 7 to 9 p.m.
Tuesday, 7 to 9 p.m.
Wednesday, 7 to 9 p.m.

NEW HIRES

Robert L. Monzingo, Ray, Arizona, SD-1.

William S. Workman, Salt Lake City, Utah, P-1.

Felicia Grunfeder, Los Angeles, SP-LA.

Vina Mae Erkkila, Los Alamos, GMX-6 (Part Time).

Janis Marie Kuehn, Fairview, N.M., Business Office.

Marvine G. Garcia, Los Alamos, AO-1 (rehire).

Barbara Smith Anderson, White Rock, J-10.

Michael S. Herrmann, Los Alamos, SP-3 (Short Term).

Karen Sue Rainey, Los Alamos, SP-4.

Thomas F. Turner, Palo Alto, Calif., P-11.

John J. Malanify, Troy, New York, P-DOR.

Rita Marie Van Lyssel, Los Alamos, J-1 (Rehire).

James Martin Potter, Peoria, Illinois, P-11.

Edward J. Richer, Albuquerque, N.M., GMX-11.

Helen Anna Burke, Los Alamos, SP-1.

Charles W. Ramsey, Los Alamos, P-2.

Sandra K. Van Valkenburg, Rock Island, Illinois, PER-1.

Elva Adams Hyatt, Berkeley, Calif., H-4.

Norman Roy Greiner, Muskegon, Michigan, GMX-2.

Linda W. Tyra, Fairview, N.M., Business Office.

NEW MEXICO'S GREAT

A DIRECTORY OF THE STATE'S PICNIC AREAS AND CAMPGROUNDS

For Los Alamos' many ardent campers, and also for those who just like to get out in the woods occasionally for a quick picnic, *The Atom* presents on the following pages what is probably the most complete list of New Mexico picnic and campground areas ever compiled.

Camping and picnicking spots are not necessarily where you'd expect them to be. For example, New Mexico has ten national parks and monuments, but there are camping facilities at only three. Carlsbad Caverns and Aztec don't even offer picnicking.

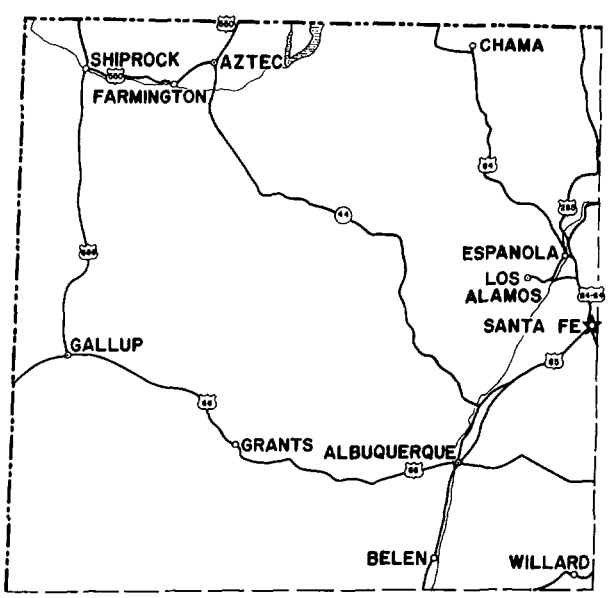
Newcomers in the serious development of outdoor recreation areas are several Indian pueblos and reservations, following the lead of Santa Clara Pueblo, which has been developing Santa Clara Canyon for several years. The Bureau of Indian Affairs is helping with the work, made possible largely through Accelerated Public Works funds. Some of the pueblos, like Santa Clara, have added their own money.

The U.S. Forest Service, which maintains a huge number of campground and picnic areas, spent nearly $600,000 during the fiscal year ending this June 30, in improvements within five national forests in New Mexico.

New Mexico's 12 state parks, operating on a budget of about three-quarters of a million dollars, expect some two million visitors this year. Operated by the New Mexico State Park and Recreation Commission the state parks have nearly doubled their picnicking, camping and boating facilities during the past year. But the demand for their use increases too.

The listings are divided into four geographic areas of the state, and subdivided according to the state or federal agency administering the campground and picnic facilities.

NORTHWEST AREA



U.S. BUREAU OF RECLAMATION

EL VADO DAM AND RESERVOIR—17 Mi. SW Tierra Amarilla on N.M. 112. Camping, fishing, picnicking, boating, seasonal hunting, rental guest units. Elevation 6,900 feet.

U.S. ARMY CORPS OF ENGINEERS

ABIQUIU RESERVOIR—32 Mi. NW Espanola on U.S. 84. Overlook shelter, picnic facilities, boat launching road. (Reservoir is generally empty except during the spring runoff).

JEMEZ CANYON RESERVOIR—15 Mi. NW Bernalillo, off N.M. 44. Overlook shelter, picnic facilities. Reservoir is generally empty except during spring runoff.

OUTDOORS

NATIONAL PARKS AND MONUMENTS

BANDELIER—New campground on Frijoles Mesa, 14 miles south of Los Alamos off St. Hwy. 4, accommodates 100 families. Picnicking in Frijoles Canyon near Monument headquarters, museum, lodge and restaurant. Tour of Indian ruins. Ample water and firewood. Trails to backcountry wild area. Some fishing in Frijoles creek.

CHACO CANYON—Camping and picnicking in desert region called "nation's greatest antiquity." Many large prehistoric pueblo ruins. Self guided tours. Museum. Drinking water at campground, but no wood. Monument headquarters on unpaved St. Hwy. 56, 30 miles south of St. Hwy. 44 from Blanco Trading Post, or southwest from Nageezi, between Cuba and Bloomfield. Also accessible north from U.S. 66 at Thoreau, via Crown Point (where pavement ends).

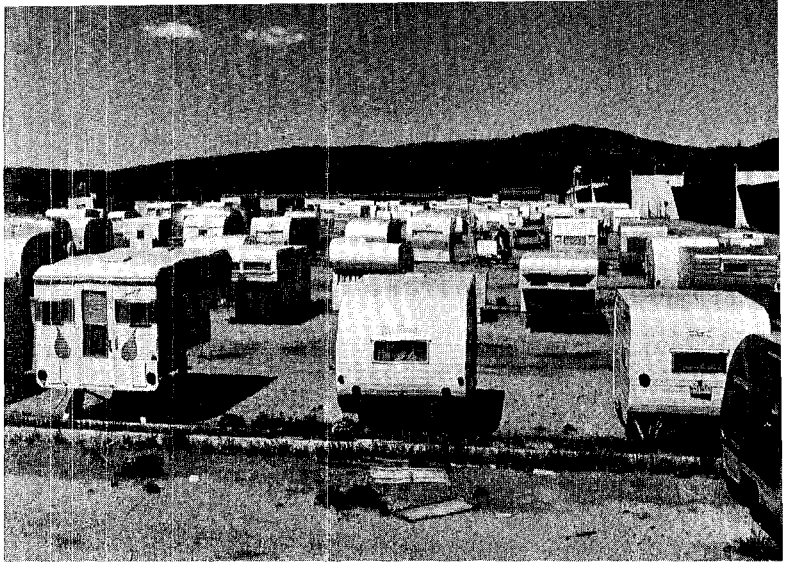
EL MORRO (INSCRIPTION ROCK)—Camping and picnicking facilities near Inscription Rock, famous for names carved by travellers since the 17th century. Self guided tour includes Indian ruin on top of the rock. Water at ranger station; no wood. On St. Hwy. 53 between Grants and Zuni, off U.S. 66.

N.M. STATE PARK COMMISSION

BLUEWATER LAKE—38 Mi. E. Gallup or 24 Mi. NW Grants, U.S. 66, then SW 7 Mi. following State Park signs. Trout, swimming, water skiing, boating. Boat dock and ramp, boat and motor rentals, rental horses, cafe, store, 15 cabins. 62 picnic units, five sheltered units, tables, benches, fireplaces, toilets, camping.

NAVAJO DAM STATE PARK—25 Mi. east Aztec, NM 17 and NM 511. Feasibility study being made to determine facilities, meanwhile area open to public recreation and sports. Trout, water skiing, swimming, boating, rental boats, launching ramp. Camping, picnic areas.

EL VADO STATE PARK—12 Mi. SW Tierra Amarilla, NM 112, then N. 5 Mi. on gravelled road. Trout, boating, water skiing, swimming. 55 picnic units, tables, fireplaces, 11 of which have shelters, 2 groups shelters; trailer spaces, no hookups.



Between outings, dozens of trailers and truck campers are stored in old Zia motor park.

U.S. BUREAU OF LAND MANAGEMENT

ANGEL PEAK RECREATION AREA—10 Mi. S. of Bloomfield off St. Hwy. 44. Campground, picnic facilities.

N.M. DEPARTMENT OF GAME AND FISH

CALAVERAS—28 Mi. N. Jemez Springs, NM 126. Stream fishing. Tables, camping; house trailers permitted.

EL VADO RESERVOIR—(See State Park Commission listing).

FENTON LAKE—24 Mi. N. Jemez Springs, NM 126. Lake fishing for trout, boating without motors. House trailers permitted.

HOPEWELL LAKE—14 Mi. W. Tres Piedra, NM 111 then 5 Mi. W. on Forest Service road. Trout fishing, boating without motors. Camping, tables.

JACKSON LAKE—8 Mi. N. Farmington, NM 17. Boating without motors. Tables, toilets.

KELLY RECREATION AREA—1 Mi. N. Chama, NM 17. Stream fishing. Camping.

LAGUNA LARGA—9 Mi. N. Tres Piedras, U.S. 285, then 12 Mi. NW on Forest Service road. Lake fishing. Tables, camping.

LOS PINOS RIVER—15 Mi. SW Antonito, Colorado, US 285, then 12 Mi. SW on local road. Trout. Camping.

McGAFFEY LAKE—12 Mi. E. Gallup, U.S. 66, then 10 Mi. S. on Forest Service road. Very small lake, boating without motors. Camping.

NUTRIAS LAKES—11 Mi. NE of Cebolla on Forest Service road. Scenic drive. Tables, camping.

NORTHWEST AREA . . .

continued from preceding page

U.S. FOREST SERVICE

Carson National Forest

ECHO AMPHITHEATER—15 miles South of Canjilon, U.S. Highway 84. Camping and picnicking. Camp trailers, fishing and hunting permitted.

LOWER CANJILON—12 miles Northeast of Canjilon, State Road 110 and Forest Road 129. Camping and picnicking. Camp trailers, fishing and hunting permitted.

CANJILON CREEK—12 miles Northeast of Canjilon, State Road 110 and Forest Road 130. Camping and picnicking. Fishing and hunting permitted.

MIDDLE CANJILON LAKE—12 miles Northeast of Canjilon, State Road 110 and Forest Road 130. Camping and picnicking. Camp trailers, fishing and hunting permitted.

UPPER CANJILON LAKE—10 miles Northeast of Canjilon, State Road 110. Picnicking. Fishing and hunting permitted.

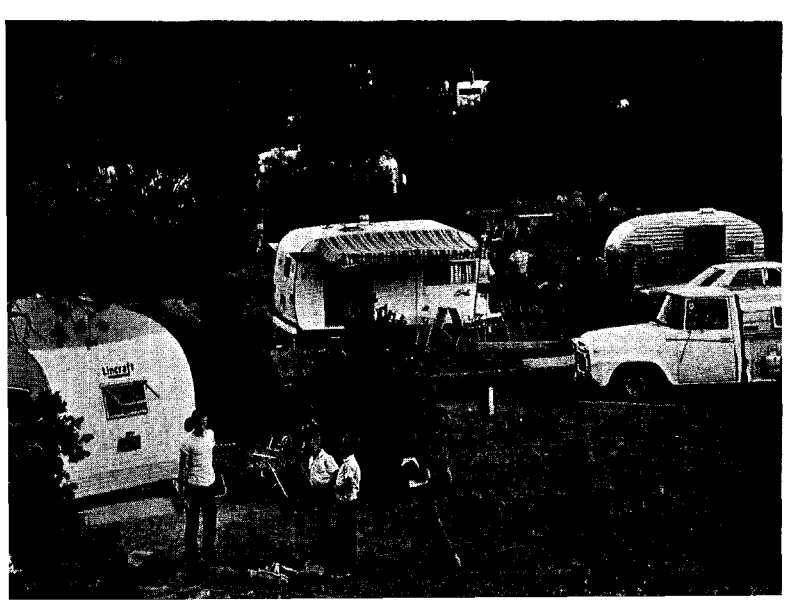
EL RITO—7 miles Northwest of El Rito, State Road 110. Camping and picnicking. Camp trailers, fishing and hunting permitted.

EL RITITO—8 miles North of Vallecitos, Forest Road 274. Camping and picnicking. Fishing and hunting permitted.

LAGUNITAS—40 miles Northwest of Tres Piedras, Forest Road 78. Camping and picnicking. Fishing and hunting permitted.

HOPEWELL LAKES—20 miles Northwest of Tres Piedras, Forest Road 356. Camping and picnicking. Camp trailers, fishing and hunting permitted.

Campers' "convention" drew scores to New Bandelier Campground in May.



Santa Fe National Forest

BATTLESHIP ROCK—5 miles North of Jemez Springs off State Road 4. Picnicking, fishing and hunting permitted.

INDIAN HEAD—6 miles North of Jemez Springs off State Road 4. Picnicking, fishing and hunting permitted.

HOT SPRINGS—7 miles North of Jemez Springs off State Road 4. Picnicking. Fishing and hunting permitted.

DARK CANYON—8 miles North of Jemez Springs off State Road 4. Picnicking. Fishing and hunting permitted.

LA CUEVA—9 miles North of Jemez Springs off State Road 4. Camping and picnicking. Camp trailers, fishing and hunting permitted.

SAN ANTONIO—11 miles North of Jemez Springs (San Antonio River). Camping and picnicking. Camp trailers, fishing and hunting permitted.

HORSESHOE SPRINGS—11 miles North of Jemez Springs off State Road 126. Camping and picnicking. Camp trailers, fishing and hunting permitted.

BANCO BONITO—17 miles North of Jemez Springs, 3 miles off State Road 4. Camping and picnicking. Camp trailers, fishing and hunting permitted.

JEMEZ FALLS—20 miles North of Jemez Springs, 2 miles off State Road 4. Camping and picnicking. Camp trailers, fishing and hunting permitted.

LAS CONCHAS—25 miles North of Jemez Springs off State Road 4. Camping and picnicking. Camp trailers, fishing and hunting permitted.

PALIZA—4 miles North of Ponderosa, Paliza Canyon. Camping and picnicking. Camp trailers, fishing and hunting permitted.

SEVEN SPRINGS—21 miles North of Jemez Springs, State Road 126. Camping and picnicking. Camp trailers, fishing and hunting permitted.

RIO PUERCO—12 miles Southwest of Coyote (6 miles off State Road 96). Camping and picnicking. Camp trailers, fishing and hunting permitted.

CLEAR CREEK—15 miles East from Cuba, State Road 126. Camping and picnicking. Camp trailers, fishing and hunting permitted.

RIO LAS VACAS—18 miles East from Cuba, State Road 126. Camping and picnicking. Camp trailers, fishing and hunting permitted.

NACIMIENTO—20 miles East from Cuba, 4 miles off State Road 126. Camping and picnicking. Camp trailers, fishing and hunting permitted.

Cibola National Forest

McGAFFEY—10 miles South of Wingate, State Highway 400. Camping and picnicking. Camp trailers, fishing and hunting permitted.

QUAKING ASPEN—6 miles South of Wingate, State Highway 400. Camping and picnicking. Camp trailers and hunting permitted.

CANYON LOBO—10 miles North of Grants. Camping and picnicking. Camp trailers and hunting permitted.

COAL MINE—15 miles North of Grants. Camping and picnicking. Hunting permitted.

OJO REDONDO—27 miles Southwest of Grants. Camping and picnicking. Camp trailers and hunting permitted.

FOURTH OF JULY—8 miles West of State Highway 10 at Tajique. Camping and picnicking. Camp trailers and hunting permitted.

TAJIQUE—5 miles West of State Highway 10 at Tajique. Camping and picnicking. Camp trailers and hunting permitted.

CAPILLO PEAK—8 miles West of State Highway 10 at Manzano. Camping and picnicking. Camp trailers and hunting permitted.

NEW CANYON—4 miles Northwest of State Highway 10 at Manzano. Camping and picnicking. Camp trailers and hunting permitted.

RED CANYON—12 miles West of State Highway 10 at Manzano. Camping and picnicking. Camp trailers and hunting permitted.

RED CLOUD—18 miles Southwest of Corona. Camping and picnicking. Camp trailers and hunting permitted.

BALSAM GLADE—Intersection of State Highway 44 and Sandia Crest Road. Picnicking.

CAPULIN SPRINGS—Off State Highway 44 on Sandia Mountain. Picnicking.

CIENEGA CANYON—1 mile South of Sandia Park off State Highway 44. Picnicking.

COLE SPRINGS—Off State Highway 10, north of Tijeras. Picnicking.

TREE SPRINGS—On State Highway 44, Sandia Mountains. Picnicking.

DRY CAMP—On State Highway 44, Sandia Mountains. Picnicking.

KIWANIS POINT—1 mile south of Sandia Crest off State Highway 44. Picnicking.

LAS HUERTAS—4 miles South of Placitas on State Highway 44. Picnicking.

DOC LONG—On State Highway 44 north of Sandia Park. Picnicking.

SULPHUR CANYON—On State Highway 44. Picnicking.

JUAN TABO—East of Alameda on West face of Sandia Mountains, N.M. 422. Picnicking.

LA CUEVA—East of Alameda on West face of Sandia Mountains, N.M. 422. Picnicking.

The tall trees and lush meadows of Santa Clara Canyon are ideal for picnics and relaxation.

U.S. BUREAU OF INDIAN AFFAIRS

SANTA CLARA CANYON—Recreation area extending 19 miles west of Espanola on forest road off St. Hwy. 4. Also accessible via Puye Cliffs on St. Hwy. 5. Many camping and picnic sites, fishing lakes and stream, ample water and firewood. Santa Clara Indians maintain park and collect fee. Picnic area and Indian ruins tour at Puye Cliffs.

HOLY GHOST SPRING—Camping and picnic grounds on two small stocked lakes a short distance west of St. Hwy. 44, on a forest road turning right 19 miles north of San Ysidro. Area maintained by Jemez Indians, who collect fee. Unique beehive ovens in place of camp fireplaces.

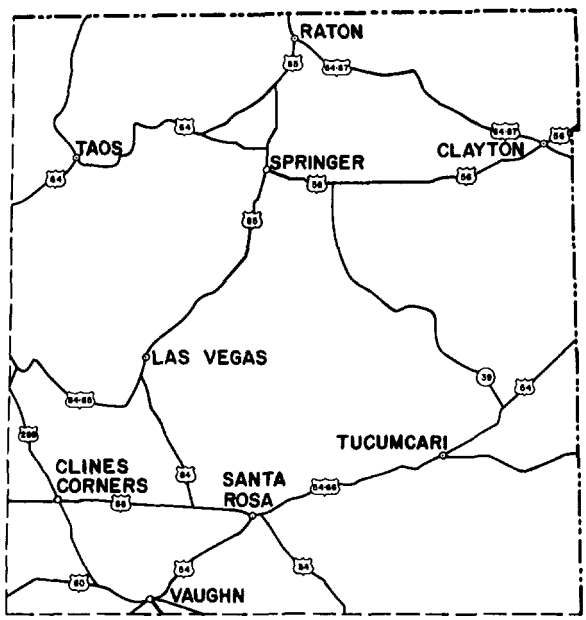
ZUNI RESERVATION—Zuni Pueblo Indians maintain 39 picnic and camping sites on several small lakes, some well stocked. Inquire at pueblo, reached by St. Hwy. 31 miles south of Gallup, thence 9 miles west on St. Hwy. 53, all paved.

ACOMITA LAKE—Good fishing in 70-acre pond maintained by Acoma Pueblo, with 15 picnic sites, boating, half a mile south of U.S. 66 from San Fidel, 18 miles east of Grants.

JICARILLA APACHE RESERVATION—Permits for fishing, camping and fishing on Dulce Lake and La Jara Lake available at Dulce, 25 miles west of Chama, on St. Hwy. 17.

NAVAJO RESERVATION—Navajos are developing Morgan Lake, artificial pond adjoining steam-electric plant on U.S. 550, near Fruitland, between Farmington and Shiprock. Warm water fishing, water sports, boat landing. Navajos also maintain numerous roadside picnic stops in Four Corners area.

NORTHEAST AREA



NATIONAL PARKS AND MONUMENTS

CAPULIN MOUNTAIN—An extinct volanic crater (cinder cone) offers interesting walk. Picnic facilities. No camping. No water. Entrance on St. Hwy. 325, 7 miles south of Folsom on St. Hwy. 72, 3 miles north of Capulin on U.S. 64-87. Park road circles crater rim.

FORT UNION—An important station on the Santa Fe trail, at the edge of the Great Plains, Fort Union National Monument offers a glimpse of life around the time of the Civil War. Walk through principal ruins and fortification. Picnicking, no wood or water, no camping. Entrance 7 miles west on paved road (St. Hwy. 477) turning off U.S. 85 half-mile north of Watrous.

U.S. FOREST SERVICE

Santa Fe National Forest

FIELD TRACT—7 miles North of Pecos, State Road 63. Camping and picnicking. Camp trailers, fishing and hunting permitted.
HOLY GHOST—16 miles North of Pecos (3 miles off State Road 63). Camping and picnicking. Camp trailers, fishing and hunting.

WINSOR—1 mile West of Cowles on Winsor Creek. Camping and picnicking. Camp trailers, fishing and hunting permitted.

PANCHUELA—1 mile North of Cowles. Camping and picnicking. Camp trailers, fishing and hunting permitted.

GLORIETA—12 miles North of Highway 85 at Glorieta L.O. Picnicking. Hunting permitted.

COWLES—1 mile West of Cowles. Camping and picnicking. Camp trailers, fishing and hunting permitted.

LITTLE TESUQUE—Adjacent to Hyde Park. Picnicking. Hunting permitted.

BIG TESUQUE—14 miles Northeast of Santa Fe, State Road 475. Picnicking. Camp trailers, fishing and hunting permitted.

BLACK CANYON—Adjacent to Hyde State Park. Camping and picnicking. Camp trailers and hunting permitted.

SANTA FE BASIN—16 miles Northeast of Santa Fe, State Road 475. Camping and picnicking. Camp trailers, fishing and hunting permitted.

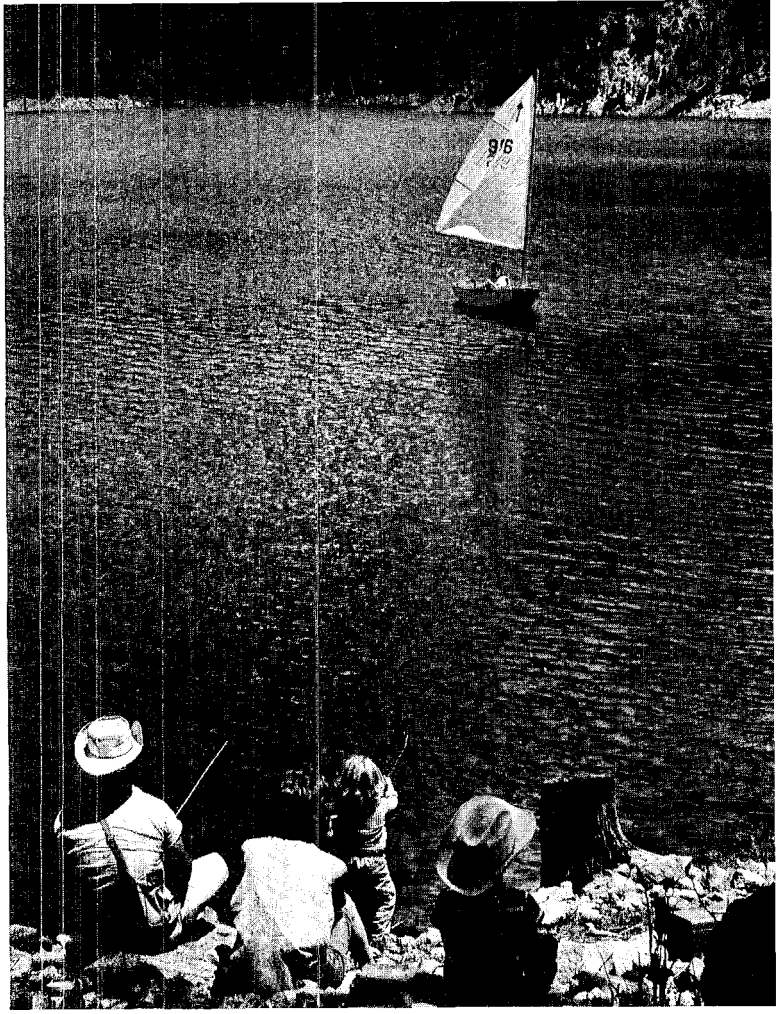
PORVENIR—15 miles Northwest of Las Vegas, State Highway 65. Camping and picnicking. Camp trailers, fishing and hunting permitted.

E. V. LONG—16 miles Northwest of Las Vegas, State Highway 65. Camping and picnicking. Camp trailers, fishing and hunting permitted.

OAK FLATS—17 miles Northwest of Las Vegas, State Highway 65. Camping and picnicking. Camp trailers, fishing and hunting permitted.

BIG PINES—20 miles Northwest of Las Vegas, State Highway 65. Camping and picnicking. Camp trailers, fishing and hunting permitted.

BRIDES—20 miles Northwest of Las Vegas, State Highway 65. Camping and picnicking. Fishing and hunting permitted.



Sailing on Cabresto Lake in the Sangre de Cristos.

Carson National Forest

DURAN CANYON—14 miles East of Peñasco, north of State Road 3. Camping and picnicking. Camp trailers, fishing and hunting permitted.

AGUA PIEDRA—12 miles East of Peñasco, State Road 3. Camping and picnicking. Camp trailers, fishing and hunting permitted.

UPPER LA JUNTA—16 miles East of Peñasco, State Road 3. Camping and picnicking. Camp trailers, fishing and hunting permitted.

ANGOSTURA—16 miles East of Peñasco, State Road 3. Camping and picnicking. Camp trailers, fishing and hunting permitted.

LA JUNTA CANYON—14 miles East of Peñasco, State Road 3 on Forest Road 116.2. Camping and picnicking. Camp trailers, fishing and hunting permitted.

SANTA BARBARA—7 miles Southeast of Peñasco, Forest Road 116.2. Camping and picnicking. Camp trailers, fishing and hunting permitted.

CABRESTO LAKE—9 miles Northeast of Questa, Forest Road 134. Camping and picnicking. Camp trailers, fishing and hunting permitted.

SCHWENTKER—5 miles Southeast of Peñasco, Forest Road 116.2. Camping and picnicking. Camp trailers, fishing and hunting permitted.

TRAMPAS CANYON—17 miles Southwest of Peñasco, State Road 76 and Forest Road 207. Camping and picnicking. Camp trailers, fishing and hunting permitted.

ELEPHANT ROCK—9 miles East of Questa, State Road 38. Camping and picnicking. Camp trailers, fishing and hunting permitted.

JUNEBUG—10 miles East of Questa on State Road 38. Camping and picnicking. Camp trailers, fishing and hunting permitted.

LEROUX—In Hondo Canyon, 9½ miles Northeast of Arroyo Seco. Camping and picnicking. Camp trailers, fishing and hunting permitted.

EL NOGAL—3 miles E. of Taos, U.S. Highway 64. Camping and picnicking. Camp trailers, fishing and hunting permitted.

LA VINATERIA—3½ miles East of Taos, U.S. Highway 64. Camping and picnicking. Camp trailers, fishing and hunting permitted.

LAS PETACAS—4½ miles East of Taos, U.S. Highway 64. Camping and picnicking. Camp trailers, fishing and hunting permitted.

CAPULIN—7 miles East of Taos, U.S. Highway 64. Camping and picnicking. Camp trailers, fishing and hunting permitted.

U.S. BUREAU OF LAND MANAGEMENT

RIO GRANDE GORGE RECREATION AREA—18 miles NW of Questa off St. Hwy. 3 (turn off 8 miles N. of Questa) Campground, picnic facilities. Ancient Indian petroglyphs and good trail to Rio Grande Gorge, fishing.

NORTHEAST AREA . . .

continued from preceding page

N.M. DEPARTMENT OF GAME AND FISH

CHARETTE LAKES—14 Mi. W. of Colmor off U.S. 85. Lake fishing for trout; boating. Tables, toilets.

CIMARRON CANYON WILDLIFE AREA—15 Mi. NW Cimarron or 2 Mi. E. Eagle Nest, U.S. 64. Stream fishing for trout. Geologic and historic interest. Tables, toilets, gas station, small store, cabins.

CLAYTON LAKE—12 Mi. N. Clayton, NM 370. Boating without motors. Camping.

McALLISTER LAKE—2 Mi. E. Las Vegas, NM 104, then 4 Mi. S. on gravel road. Boating without motors. Tables, toilets.

RED RIVER HATCHERY AREA—3 Mi. SW Questa, NM 3. Stream fishing for trout. Tables, toilets.

MAXWELL LAKES—6 lakes within 12 Mi. N. and W. of Maxwell, U.S. 85. Trout and warm water fishing. Tables, toilets.

MORA RIVER—18 Mi. N. Pecos, NM 63. Tables, camping, house trailers.

PECOS RECREATION AREA—13 Mi. N. Pecos, NM 63. Stream fishing for trout. Saddle horses, gasoline, store. Shelters, tables, toilets, camping.

U.S. BUREAU OF RECLAMATION

STUBBLEFIELD RESERVOIRS—8 Mi. NW Maxwell via N.M. 505 and county roads. General camping, fishing, picnicking, boating, seasonal hunting. Elevation 6,000 feet.

N.M. STATE PARK COMMISSION

CONCHAS DAM STATE PARK—24 Mi. N. Newkirk, NM 129, or 32 Mi. NW Tucumcari, NM 104. Walleye, channel catfish, crappie, largemouth bass, bluegill. 150 picnic units, shelters, tables, drinking water, toilets. Trailer park with hookups. Cabins, lodge, cafes, stores, boating, swimming, water skiing.

STORRIE LAKE STATE PARK—5 Mi. N. Las Vegas, NM 3. Trout, crappie; boating, water skiing, swimming. Public boat dock. 10 sheltered picnic units, tables, fireplaces, toilets, camping.

HYDE MEMORIAL STATE PARK—8 Mi. NE Santa Fe, Hyde Park road. 52 picnic units, 13 of which are sheltered; tables, fireplaces, camping, playground for children.

SANTA FE RIVER STATE PARK—In Santa Fe on Alameda Street, merging with state capitol grounds. Picnicking only, 18 units with tables and benches.

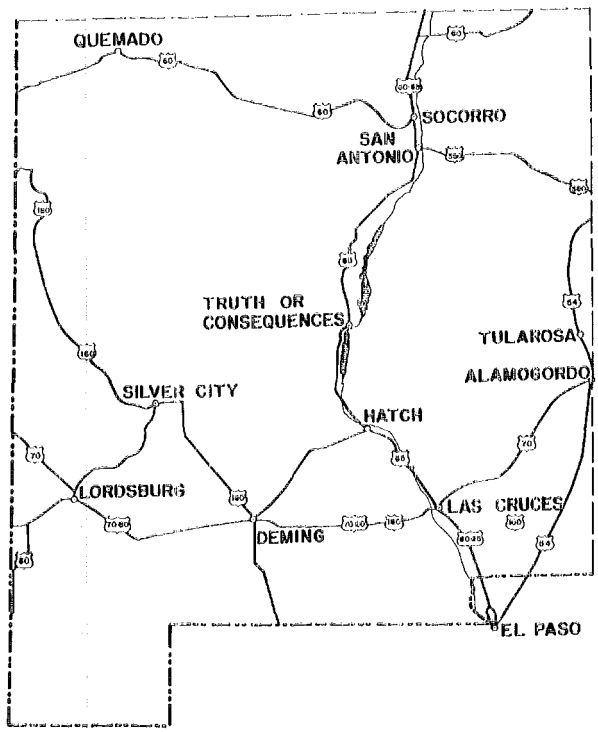
KIT CARSON MEMORIAL STATE PARK—N. edge Taos. 11 picnic units with tables, benches, fireplaces; two group shelters; playground; ice skating in season.

U.S. ARMY CORPS OF ENGINEERS

CONCHAS RESERVOIR—31 Mi. NW Tucumcari on N.M. 104. Administration area has overlook shelter and picnic facilities. For additional facilities listing see STATE PARKS.

How better to end a day
than by campfire's light?

SOUTHWEST AREA



U.S. FOREST SERVICE

Cibola National Forest

BEARTRAP—24 miles South of Magdalena, State Highway 52. Camping and picnicking. Camp trailers and hunting permitted.

WATER CANYON—12 miles Southeast of Magdalena, U.S. Highway 60. Camping and picnicking. Camp trailers and hunting permitted.

LUNA PARK—10 miles Northeast of Monticello. Camping and picnicking. Camp trailers permitted.

SPRINGTIME—35 miles Northwest of Truth or Consequences, U.S. Highway 85. Camping and picnicking. Camp trailers and hunting permitted.

Gila National Forest

LITTLE WALNUT—6 miles North of Silver City. Picnicking.

CHERRY CREEK—14 miles North of Silver City, State Road 25. Picnicking. Hunting permitted.

WHITEWATER—5½ miles North of Glenwood. Camping and Picnicking. Camp trailers and fishing permitted.

WILLOW CREEK—18 miles East of Mogollon, State Road 78. Camping and picnicking. Camp trailers, fishing and hunting permitted.

IRON CREEK—15 miles Northeast of San Lorenzo, State Road 180. Camping and picnicking. Camp trailers and hunting permitted.

WRIGHT CABIN—16 miles Northeast of San Lorenzo, State Road 180. Camping and picnicking. Camp trailers and hunting permitted.

McMILLAN—15 miles North of Silver City, State Road 25. Camping and picnicking. Camp trailers and hunting permitted.

PINE FLAT—20 miles North of Silver City, State Road 25. Camping and picnicking. Camp trailers and hunting permitted.

COTTONWOOD CANYON—67 miles South of Springerville, U.S. Highway 260. Camping and picnicking. Camp trailers and hunting permitted.

LAKE ROBERTS—30 miles Northeast of Silver City, State Road 25. Camping and picnicking. Camp trailers, boating, fishing and hunting permitted.

BEN LILLY—26 miles Northeast of Glenwood, State Road 78. Camping and picnicking. Camp trailers and hunting permitted.

GILITA—19 miles East of Mogollon, State Road 78. Camping and picnicking. Camp trailers, fishing and hunting permitted.

ROCKY CANYON—23 miles North of Mimbres, State Road 61. Camping and picnicking. Camp trailers and hunting permitted.

BLACK CANYON—32 miles North of Mimbres, State Road 61. Camping and picnicking. Camp trailers and hunting permitted.

LOWER BLACK CANYON—32 miles North of Mimbres, State Road 61. Camping and picnicking. Camp trailers and hunting permitted.

BEAR CANYON—3 miles North of Mimbres, State Road 61. Camping and picnicking. Fishing permitted.

EMORY PASS—8 miles West of Kingston, State Road 180. Picnicking. Hunting permitted.

SOUTHWEST AREA . . .

continued from preceding page

N.M. DEPARTMENT OF GAME AND FISH

BEAR CANYON DAM—6 Mi. NW San Lorenzo, NM 61. Trout and warm water fishing, boating without motors. Tables, camping.

WALL LAKE—55 Mi. NE San Lorenzo or 10 Mi. S Beaverhead, NM 61. Lake fishing and limited stream fishing. Near Indian ruins. Tables, camping, house trailers.

SAN SIMON—33 Mi. SW Lordsburg, US 80. Warm water fishing. Toilets.

U.S. BUREAU OF SPORT FISHERIES AND WILDLIFE

HOT SPRINGS NATIONAL FISH HATCHERY—below Elephant Butte Dam near Truth or Consequences. Limited picnic facilities.

U.S. BUREAU OF RECLAMATION

CABALLO RESERVOIR—20 Mi. S Truth of Consequences on U.S. 85. Camping, swimming, boating, fishing, seasonal hunting. Elevation 4,158 feet.

ELEPHANT BUTTE DAM AND RESERVOIR—5 Mi. E Truth or Consequences off U.S. 285. General camping, trailer facilities, rental guest units, boating, fishing, seasonal hunting. Elevation 4,353 feet.

N.M. STATE PARK COMMISSION

CITY OF ROCKS STATE PARK—22 Mi. NW Deming, NM 260, then turn right at State Park Sign for 5 Mi. E. Unusual rock formations. 56 picnic units, tables, benches, fireplaces, drinking water, toilets, camping, playground.

PANCHO VILLA STATE PARK—3 Mi. N of Mexican border at Columbus. Botanical garden. 25 sheltered picnic units with tables and charcoal grill fireplaces, camping permitted.

SOUTHEAST AREA

NATIONAL PARKS AND MONUMENTS

WHITE SANDS—World's largest gypsum desert affords many interesting views at White Sands National Monument, off U.S. 70 between Alamogordo and Las Cruces. Museum, loop drive, picnicking, no camping. No wood or water.

GRAN QUIVIRA—Ruins of a 17th century Spanish mission and adjacent Pueblo Indian ruins, 21 miles south of Mountainair on St. Hwy. 10. Picnic facilities.

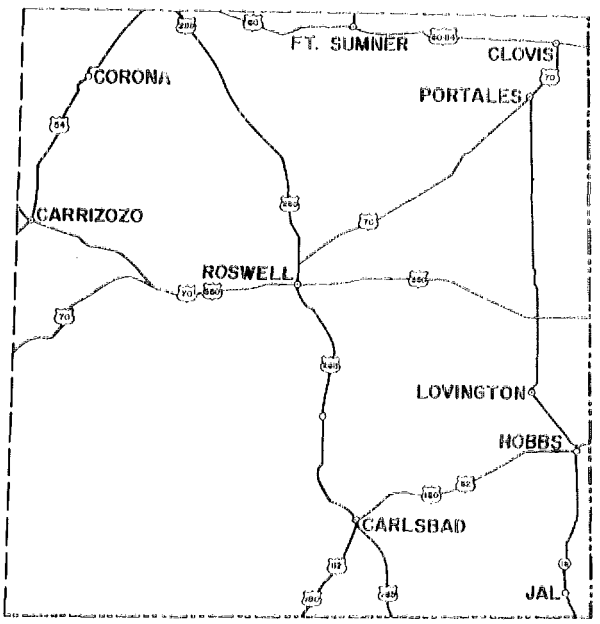
N.M. STATE PARK COMMISSION

BOTTOMLESS LAKES STATE PARK—10 Mi. E. Roswell, US 380, then 7 Mi. E paved road. Fishing, rental boating only, swimming, rental horses. 60 picnic units, 46 of which have shelters, one group shelter, camping and trailers spaces within concession area, drinking fountains, toilets, playgrounds.

OASIS STATE PARK—7½ Mi. NE Portales off NM 467. An oasis within shifting sand dunes. 40 picnic units, many with shelters; tables, benches, fireplaces, drinking water, toilets.

U.S. BUREAU OF INDIAN AFFAIRS

MESCALERO APACHE RESERVATION—Directions for reaching 75 picnic areas on Ruidoso creek, 9 camp units on Eagle Lake, and 13 fishing ponds in Silver Springs region obtainable at Mescalero agency headquarters, 17 miles east of Tularosa on U.S. 70.



U.S. ARMY CORPS OF ENGINEERS

TWO RIVERS RESERVOIR—20 Mi. SW Roswell via U.S. 380 (13 mi.) and project road (7 mi.). Overlook shelter, picnic facilities. Reservoir is generally empty except during flood runoff on the Rio Hondo.

U.S. BUREAU OF RECLAMATION

McMILLAN AND AVALON RESERVOIRS—5 to 20 Mi. N Carlsbad off U.S. 285. General camping, boating, fishing, seasonal hunting. Elevation 3,200 feet.

ALAMOGORDO DAM AND RESERVOIR—19 Mi. N Fort Sumner on U.S. 84 and N.M. 203. Camping, swimming, boating, fishing, seasonal hunting. Elevation 4,275.

An upended log, a porcelain basin and a splash of cold water are better than a stuffy ol' bathroom any time.

U.S. FOREST SERVICE

Lincoln National Forest

NOGAL LAKE—5 miles West of Capitan on U.S. Highway 380, south 4 miles on Forest Road. Camping and picnicking. Camp trailers, fishing and hunting permitted.

CEDAR CREEK PICNIC AREA—2 miles North of Ruidoso, State Road 37. Picnicking. Fishing and hunting permitted.

CEDAR CREEK CAMPGROUND—2 miles north of Ruidoso, State Road 37. Camping. Camp trailers, fishing and hunting permitted.

JAMES CANYON—3 miles West of Mayhill, State Road 83. Camping and picnicking. Camp trailers and hunting permitted.

SITTING BULL FALLS—12 miles North of Carlsbad, State Road 285 and 24 miles West on State Road 137. Camping and picnicking. Camp trailers and hunting permitted.

KARR CANYON—4 miles South of Mountain Park on Forest Road. Camping and picnicking. Camp trailers and hunting permitted.

DEERHEAD—2 miles South of Cloudcroft off State Road 24. Camping and picnicking. Camp trailers and hunting permitted.

PINES—2 miles North of Cloudcroft off State Road 24. Camping and picnicking. Camp trailers and hunting permitted.

SLEEPYGRASS—3 miles East of Cloudcroft off State Road 83. Camping and picnicking. Camp trailers and hunting permitted.

MONJEAU—14 miles Northwest of Ruidoso, State Road 37. Picnicking. Hunting permitted.

SKYLINE—12 miles Northwest of Ruidoso, State Road 37. Camping and picnicking. Hunting permitted.

OAK GROVE—10 miles Northwest of Ruidoso, State Road 37. Picnicking. Hunting permitted.

U.S. BUREAU OF SPORT FISHERIES AND WILDLIFE

DEXTER NATIONAL FISH HATCHERY—Dexter, N.M. Limited picnic facilities on grounds.

N.M. DEPARTMENT OF GAME AND FISH

WASHINGTON RANCH RESTORATION AREA—27 Mi. SW Carlsbad, US 62-180, then 3 Mi. on local road. Stream fishing. Near Carlsbad Caverns. Tables, toilets.

Photographic interpretation by J. Frederick Laval

Henry T. Motz
3137 Woodland
Los Alamos, New Mexico

For exploration beyond the moon, nuclear energy offers the only feasible means of propulsion. Los Alamos scientists bear full responsibility for development of Rover reactors to power nuclear rockets.

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